Amendments to the Claims:

1. (Cancelled).

2. (Previously presented) The apparatus of Claim 34, wherein one of the sensor and the catheter is configured to locate the sensor with respect to the vessel to minimize wall effects.

3. (Previously presented) The apparatus of Claim 34, further comprising a controller operably connected to the sensor to calculate a flow rate corresponding to the signal from the downstream sensor.

4. (Previously presented) The apparatus of Claim 34, wherein the blood property change port includes an aperture for introducing a blood property variant.

5. (Previously presented) The apparatus of Claim 34, wherein the blood property change port and the sensor are spaced by a sufficient distance to substantially mix a dilution indicator introduced through the port and the blood flow.

6. (Previously presented) The apparatus of Claim 34, wherein the blood property change port includes one of a heat sink and a heat source for creating a local temperature gradient.

7. (Cancelled).

8. (Cancelled).

9. (Currently Amended) A stenosis reducing catheter, comprising:

(a) a catheter body having a stenosis reducing member selectively actuatable to reduce stenosis in a vessel;

(b) one of a local heat source and local heat sink affixed to the catheter body ~~a port in the catheter body~~ for inducing a blood property change to blood flowing external to the stenosis reducing catheter, the one of the local heat source and local heat sink ~~blood property change port~~ located a fixed distance from the stenosis reducing member; and

(c) a sensor affixed to the catheter body and spaced a given distance from the local heat source and local heat sink ~~blood property change port~~ for providing a

signal corresponding to a change in a blood property external to the stenosis reducing catheter~~, the signal corresponding to a relationship of flow rate = $\frac{V}{\int C(t)dt}$ where V is the volume of indicator introduced and $\int C(t)dt$ is an area under a dilution curve~~.

10. (Previously presented) The catheter of Claim 9, wherein one of the sensor and the catheter is configured to locate the sensor with respect to the vessel to minimize wall effects.

11. (Previously presented) The catheter of Claim 9, further comprising a controller operably connected to the sensor to calculate the flow rate corresponding to the signal from the downstream sensor.

12. (Original) The catheter of Claim 9, wherein the port includes an aperture for introducing a blood property variant.

13. (Original) The catheter of Claim 9, wherein the blood property change port and the sensor are spaced by a sufficient distance to substantially mix a dilution indicator introduced through the port and the blood flow.

14. (Original) The catheter of Claim 9, wherein the port includes one of a heat sink and a heat source for creating a local temperature gradient.

15. (Currently amended) An apparatus for determining blood flow, comprising:

(a) a dilution indicator source;

(b) a catheter connectable to the dilution indicator source, the catheter having means for performing a vascular corrective procedure, a dilution indicator port for passing a dilution indicator therethrough to pass from the catheter and a downstream sensor a fixed distance from the indicator port for producing a signal corresponding to passage of the dilution indicator external to the catheter; and

(c) a controller connected to the dilution indicator source and the sensor for calculating a blood flow in response to the signal from the sensor~~, the controller~~

~~selected to calculate the blood flow corresponding to $\frac{V}{\int C(t)dt}$ where V is the volume of indicator introduced and $\int C(t)dt$ is an area under a dilution curve.~~

16. (Currently Amended) A method for quantitatively measuring a reduced stenosis induced flow change, comprising:

(a) inserting a catheter and a blood property sensor into a vessel having a blood flow corresponding to the stenosis;

(b) introducing from an indicator source a first change in a blood property in a blood flow outside the catheter at a fixed distance from the blood property sensor and upstream of the blood property sensor;

(c) detecting passage of the first change in the blood property at the blood property sensor;

(d) reducing the stenosis in the vessel;

(e) introducing from the indicator source a second change in the blood property upstream of the sensor;

(f) detecting passage of the second change in the blood property at the blood property sensor; and

(g) determining at a controller connected to the indicator source and the sensor a change in blood flow corresponding to (i) the detected passage of the first change in the blood property and [[;]] (ii) the second change in the blood property; ~~and $\frac{V}{\int C(t)dt}$ where V is the volume of indicator introduced and $\int C(t)dt$ is an area under a dilution curve.~~

17. (Previously presented) The method of Claim 16, wherein inserting a catheter and a blood property sensor into a vessel includes inserting a first catheter having a stenosis reducing member and a second catheter having the blood property sensor, the first catheter and the second catheter being connected to locate the blood property sensor at a fixed location relative to the stenosis reducing member.

18. (Original) The method of Claim 16, wherein inserting a catheter and a blood property sensor into a vessel includes inserting a catheter having a stenosis reducing member and the blood property sensor.

19. (Currently Amended) A method of monitoring blood flow during a vascular corrective procedure, comprising:

(a) inserting a catheter into a vessel;

(b) employing the catheter to perform a vascular correction in the vessel;

(c) introducing from an indicator source a first blood property change into a blood flow outside the catheter;

(d) detecting passage of the first blood property change past a downstream sensor on the catheter; and

(e) calculating the blood flow at a controller operably connected to the indicator source and the downstream sensor in response to the change in blood property and passage of the blood property past the downstream sensor; ~~and~~ $\frac{V}{\int C(t)dt}$ ~~where V is the volume of indicator introduced and $\int C(t)dt$ is an area under a dilution curve~~.

20. (Cancelled)

21. (Cancelled)

22. (Currently Amended) An apparatus for determining an intra-procedural blood flow in a corrective procedure, comprising:

(a) a catheter;

(b) a temperature gradient generator ~~blood parameter altering section~~ on the catheter located to alter a blood parameter external to the catheter;

(c) means for effecting the corrective procedure; and

(d) a blood parameter sensor connected to the catheter and spaced a fixed distance from the temperature gradient generator ~~blood parameter altering section~~ to sense the altered blood parameter external to the catheter and provide a signal for determining a blood flow ~~corresponding to~~ $\frac{V}{\int C(t)dt}$ ~~where V is the volume of indicator introduced and $\int C(t)dt$ is an area under a dilution curve~~.

23. (Cancelled).

24. (Currently amended) The apparatus of Claim 22, further comprising a controller connectable to the temperature gradient generator ~~altering section~~ and the blood parameter sensor to calculate the blood flow.

25. (Currently amended) A method of monitoring a stenosis reducing procedure in a vessel, comprising:

(a) locating a blood parameter altering section connected to a rate and volume measured indicator source in the vessel to alter a blood parameter in a blood flow contacting the vessel;

(b) locating a blood parameter sensor a fixed distance downstream of the altering section;

(c) performing the stenosis reducing procedure; and

(d) determining in a controller connected to the indicator source and the blood parameter sensor a blood flow in response to a passage of an altered blood property past the blood parameter sensor, ~~the determined blood flow corresponding to $\frac{V}{\int C(t)dt}$ where V is the volume of indicator introduced and $\int C(t)dt$ is an area under a dilution curve~~.

26. (Original) The method of Claim 25, wherein performing the stenosis reducing procedure includes angioplasty.

27. (Original) The method of Claim 25, further comprising locating the blood parameter sensor to reduce wall effects from the vessel.

28. (Original) The method of Claim 25, further comprising rotating the blood parameter sensor with respect to the vessel to reduce wall effects from the vessel.

29. (Original) The method of Claim 25, further comprising locating a plurality of blood parameter sensors in the vessel.

30. (Previously presented) The apparatus of Claim 34, wherein the sensor detects changes in one of electrical impedance and electrical resistance.

31. (Previously presented) The apparatus of Claim 34, wherein the sensor detects one of an optical, thermal, electrical, chemical or physical property of the blood.

32. (Previously presented) The catheter of Claim 35, wherein the sensor detects changes in one of electrical impedance and electrical resistance.

33. (Previously presented) The catheter of Claim 35, wherein the sensor detects one of an optical, thermal, electrical, chemical or physical property of the blood.

34. (Currently amended) An apparatus for determining a blood flow in a vessel, comprising:

(a) an elongate catheter having a stenosis reducing member, a local temperature gradient generator ~~a blood property change port~~ located to alter a blood property outside the catheter and a downstream sensor affixed to the catheter and spaced from the generator ~~port~~ for producing a signal corresponding to the blood property in a blood flow in the vessel~~, and the correspondence relates blood flow to $= \frac{V}{\int C(t)dt}$ where V is the volume of indicator introduced and $\int C(t)dt$ is an area under a dilution curve~~.

35. (Currently amended) An apparatus for determining blood flow in a vascular passage, comprising:

(a) a catheter having means for increasing the effective size of a portion of the vascular passage, the catheter including a dilution indicator introduction port and a downstream blood property sensor affixed to the catheter;

(b) an indicator source connected to the catheter for providing a known rate and volume of dilution indicator to the indicator introduction port; and

[[(b)]] (c) a controller operably connected to the blood property sensor and the indicator source for calculating a blood flow through the vascular passage corresponding to a signal from the blood property sensor ~~and corresponding to the~~

~~relation $AF = \frac{V}{\int C(t)dt}$ where AF corresponds to the blood flow, V is a volume of indicator introduced and $\int C(t)dt$ is the area under a dilution curve.~~

36. (Previously presented) The apparatus of Claim 34, wherein the volume of indicator introduced is one of a bolus and a constant infusion.

37. (Previously presented) The apparatus of Claim 35, wherein the volume of indicator introduced is one of a bolus and a constant infusion.

38. (Previously presented) The apparatus of Claim 15, wherein the dilution indicator source is selected to introduce one of a bolus injection and a constant infusion.

39. (Previously presented) The method of Claim 16, wherein introducing the first change in the blood property includes introducing one of a bolus injection and a constant infusion.

40. (Previously presented) The method of Claim 16, wherein introducing the second change in the blood property includes introducing one of a bolus injection and a constant infusion.

41. (Previously presented) The method of Claim 19, wherein introducing the first blood property change includes introducing one of a bolus injection and a constant infusion.

42. (Previously presented) The method of Claim 25, further comprising altering the blood property by introducing one of a bolus injection and a constant infusion.

43. (Cancelled).